IOWA UTILITIES BOARD
Policy Section

Docket No.: RMU-2016-0003
(NOI-2014-0001)
Memo Date: October 4, 2016

TO: The Board

FROM: Brenda Biddle
Scott Bents

SUBJECT: Proposed Revisions to 199 Chapter 45 and Request for Additional Comments

I. Background

On July 22, 2016, the Utilities Board (Board) issued an order commencing a rule making to review the Board's Electric Interconnection of Distributed Generation Facilities rules, 199 Iowa Administrative Code (IAC) chapter 45. The revisions incorporated stakeholder input[1] from Docket No. NOI-2014-0001, regarding distributed generation and the recently adopted Iowa Code § 476.58. Additionally, the Board issued an order on August 8, 2016, requesting comments on proposed forms and processes that were to be removed from the chapter 45 rules and posted on the Board's Web site.

Initial comments were filed by Interstate Power and Light Company (IPL), MidAmerican Energy Company (MidAmerican), the Iowa Association of Electric Cooperatives (IAEC), and the Office of Consumer Advocate (OCA), a division of the Iowa Department of Justice. Joint comments were filed by the Environmental Law & Policy Center (ELPC), the Iowa Environmental Council (IEC) and the Interstate Renewable Energy Council, Inc. (IREC). ITC Midwest filed an appearance in the docket but did not provide comments. Additionally, MidAmerican filed reply comments.

II. Analysis

Staff proposes to make several changes to the rules proposed in the July 22, 2016, order based on comments filed in this docket. Additionally, staff has reviewed comments made in Docket No. RMU-2016-0006 (199 IAC chapter 15) because 199 IAC 15.10 includes language similar to 199 IAC 45.3. Staff has

[1] Stakeholder input includes comments filed in response to Board Orders issued on: January 7, 2014, May 12, 2014, September 19, 2014; December 22, 2014, March 12, 2015, and October 9, 2015; and the discussion during the workshop held on October 6, 2015.

provided shaded text to reflect recommended changes from the rules proposed in the July 22, 2016, order.

199—45.1(476) Definitions

IPL suggested the Board remove the definition for draw-out type circuit breaker because the Board proposes to strike the use of that term in 199 IAC 45.3(2).

MidAmerican reiterated its position that energy storage facilities should have a separate definition rather than be included in the definition for distributed generation. MidAmerican believes energy storage may create safety issues since it is capable of energizing a system similar to the way a generating facility would.

Both IPL and MidAmerican suggested changes to the definition of disconnection device.

IPL suggested that the definition of disconnection device be revised to acknowledge that breakers often cannot be installed adjacent to meters and sometimes cannot provide a lockable disconnect. IPL proposed:

> "*Disconnection device*" means a lockable visual disconnect or other disconnection device, such as, but not limited to, a service disconnect, or gang operated main disconnect~~, or breaker~~ capable of isolating, disconnecting and de-energizing the residual voltage in a distributed generation facility.

MidAmerican proposed the following definition for disconnection device to include the definition of energy storage facility addressed below:

> "*Disconnection device*" means a lockable visual disconnect or other disconnection device~~, such as, but not limited to, a service disconnect, gang operated, or main disconnect breaker~~ capable of isolating, disconnecting and de-energizing the residual voltage in a customer-sited distributed generation facility or distributed energy storage facility subject to the requirements of Chapters 15 and 45.

Both the IAEC and the OCA support MidAmerican's suggested changes in the first part of the definition for disconnection device because the change helps to clarify that the devices include only those that will disconnect the generating facility and not those that disconnect the main service. However, neither the IAEC nor the OCA supports the inclusion of the term "customer-sited". ELPC/IEC/IREC supports the Board's proposed definition of disconnection device.

Staff Recommendation

Staff recommends that the definition for draw-out type circuit breaker be removed from the rules since the term is no longer used in 199 IAC chapter 45.

Staff notes that the question of whether energy storage should have a separate definition was discussed in Docket No. NOI-2014-0001; and staff recommended that energy storage be included in the definition of distributed generation facility[2] rather than having a separate definition. Staff reasoned that the current rules are designed to promote distributed generation in general and are not designed to promote any specific distributed generation technology. Staff believes having a separate definition for distributed energy storage would place more emphasis on energy storage technologies as compared to other distributed generation technologies. Most comments (related to energy storage in Docket No. NOI-2014-0001) agreed that energy storage should be considered as a distributed generation technology. Staff recommends that no changes be made to the proposed definition of distributed generation facility and that energy storage need not have a separate definition.

Based on comments staff recommends updating the definition of disconnection device as follows:

> "*Disconnection device*" means a lockable visual disconnect or other disconnection device~~, such as, but not limited to, a service disconnect, or gang operated main disconnect, or breaker~~ capable of isolating, disconnecting and de-energizing the residual voltage in a distributed generation facility.

199—45.2(476) Scope

IPL suggested that potential impacts to electrical systems not owned or operated by the interconnecting utility (i.e. transmission system) should be addressed and proposed the following revision:

> **45.2(1)** This chapter applies to utilities, and distributed generation facilities seeking to operate in parallel with utilities, provided the facilities are not subject to the interconnection requirements of an affected system, the Federal Energy Regulatory Commission (FERC), the ~~Midwest~~ Midcontinent Independent ~~Transmission~~ System Operator, Inc. (MISO), the Southwest Power Pool (SPP), the Midwest Reliability Organization (MRO), ~~Mid-Continent Area Power Pool (MAPP)~~ or the SERC Reliability Corporation (SERC).

No other comments addressed this proposed change.

[2] *"Distributed generation facility"* means a qualifying facility, ~~or~~ an AEP facility, or an energy storage facility.

Staff Recommendation

During the course of Docket No. NOI-2014-0001, there were several rounds of comments and a workshop to discuss changes to the chapter 45 rules. IPL did not suggest the above-mentioned change during those comments and no other comments have been filed that address IPL's suggested change. Staff recommends the Board issue an order that specifically asks parties to respond to IPL's proposed revision to 199 IAC 45.2(1) so the Board can determine whether the change will have any unintended consequences and whether other parties believe the proposed change is needed.

199—45.3(476) Technical standards

45.3(2) *Interconnection facilities.*

ELPC/IEC/IREC generally supports the Board's approach to satisfying "adjacent to the meter" criterion but believes there may be unique instances in which the placement of the disconnect device may require additional flexibility (i.e. cost considerations). ELPC/IEC/IREC suggested that the following language be included at the end of 45.3(2)(a):

> In limited circumstances, where the distributed generation facility is not installed at the building with the electric meter and the applicant can demonstrate significant expense or difficulty in locating the disconnection device adjacent to the meter, the disconnection device may be located adjacent to the distributed generation facility and an additional placard must be placed at the electric meter to provide specific information regarding the distributed generation facility and the disconnection device.

The IAEC suggested that 45.3(2)(a)(1) should be amended to require the customer notify the electric utility before additional generation capacity is added to the existing system and require that the customer comply with the electric utility's tariff, which may (or may not) require a disconnect device.

Staff Recommendation

Staff understands ELPC/IEC/IREC's desire for flexibility with respect to the location of the disconnection device; but staff does not believe the statute allows for that flexibility. Iowa Code § 476.58(2)(a) states,

> "For installations placed in service on or after July 1, 2015, a requirement that a ***disconnection device be installed at a location that is easily visible and adjacent to an interconnection customer's electric meter***. For installations

> placed in service prior to July 1, 2015, a requirement that an interconnection customer provide and attach a permanent placard at the electric meter that clearly identifies the presence and location of disconnection devices for distributed generation facilities on the property." (Emphasis added)

Based on the statutory directives and the very limited flexibility given to the Board, staff does not recommend adopting ELCP/IEC/IREC's proposed language which would allow for variations in the placement of the disconnection devices.

Staff believes the recommendations for 199 IAC 45.3(2)(a)(1) provided by the IAEC will help clarify the intent of the rule. Staff recommends the following revision to 199 IAC 45.3(2)(a)(1):

> (1) If an interconnection customer with distributed generation facilities installed prior to July 1, 2015, adds generation capacity to its existing system that does not require upgrades to the electric meter or electrical service, a disconnection device is not required, unless required by the electric utility's tariff. The customer must notify the electric utility before the generation capacity is added to the existing system.

45.3(4) *Inspections and testing*

IPL suggested that the rule require testing once every five years even if the manufacturer's prescribed testing interval is greater than five years. Additionally, IPL recommended that the rule require that the operator provide the test reports and maintenance records to the utility upon request. IPL proposed:

> The operator of the qualifying facility or AEP facility shall adopt a program of inspection and testing of the generator and its appurtenances and the interconnection facilities in order to determine necessity for replacement and repair. Such a program should include all periodic tests and maintenance prescribed by the manufacturer; however, if the periodic testing of interconnection-related protective functions is greater than five years or not specified by the manufacturer, it should occur at least every five years. The operator, upon electric utility request, shall provide all test reports to the electric utility documenting the existing settings as well as the "as found" and "as left" test results. All interconnection-related protective functions shall be periodically tested and a system that depends upon battery for trip power shall be checked and logged. Complete maintenance records shall be maintained by the operator and be made available upon request by

> the electric utility. Representatives of the electric utility shall have access at all reasonable hours to the interconnection equipment specified in subrule 15.10(3) for inspection and testing with reasonable prior notice to the applicant. If the electric utility discovers the applicant's facility is not in compliance with the requirements of IEEE Standard 1547, or any part of the foregoing, and the noncompliance adversely affects the safety or reliability of the electrical system, the electric utility may require disconnection of the applicant's facility until it complies with this chapter.

The OCA supports IPL's suggestions as the additional requirements would help ensure public safety.

ELPC/IEC/IREC believes the changes suggested by IPL are unnecessary. Requiring more frequent testing than the manufacturer recommendations creates an unnecessary expense and requirement without any corresponding benefit. Additionally, the reporting requirements suggested by IPL create a burden for system operators.

Staff Recommendation

Staff recommends the Board revise the proposed rule to incorporate some of IPL's suggestions. Staff believes that inspecting the facility as prescribed by the manufacturer or once every five years should provide reasonable assurance that the facility is operating properly. Staff recommends the facility operator maintain (and provide to the utility if asked) the test reports; but because it is unclear what is included in "complete maintenance records," staff does not recommend requiring operators to maintain (and provide to the utility if asked) those records.

Staff recommends the following revisions:

> **45.3(4)** *Inspections and testing.* The operator of the distributed generation facility shall adopt a program of inspection and testing of the generator and its appurtenances and the interconnection facilities in order to determine necessity for replacement and repair. Such a program ~~should~~ shall include all periodic tests and maintenance prescribed by the manufacturer. If the periodic testing of interconnection-related protective functions is not specified by the manufacturer, periodic testing shall occur at least once every five years. All interconnection-related protective functions shall be periodically tested, and a system that depends upon a battery for trip power shall be checked and logged. Test reports shall be maintained by the operator and made available upon request by the electric utility. Representatives of the utility shall have access at all reasonable hours to the interconnection equipment specified in subrule 45.3(2) for inspection and testing with reasonable prior

> notice to the applicant. If the utility discovers that the applicant's facility is not in compliance with the requirements of IEEE Standard 1547, and the noncompliance adversely affects the safety or reliability of the electrical system, the utility may require disconnection of the applicant's facility until the facility complies with this chapter.

45.3(6) *Notification*

ELPC/IEC/IREC noted that Iowa Code § 476.58 requires owners of distributed generation facilities to provide information to fire department personnel. ELPC/IEC/IREC suggested the Board's requirements go beyond the requirements of the statute and may lead to a patchwork of notice requirements. ELPC/IEC/IREC recommended the Board limit the requirements to site map and limited supplemental information to ensure the distributed generation facility and disconnection device are clearly identified. Additionally, the requirements should be standardized and should not allow fire departments to request information not on the standard list.

IPL proposed to add a new subrule (d) to aid in the enforcement of the notification requirements. Following is the language suggested by IPL:

> d. An interconnection customer failing to comply with the foregoing requirements may be disconnected as provided in 199 IAC 20. The disconnection process details shall be provided in individual electric utility tariffs or the interconnection agreement.

The IAEC is supportive of the Board's proposed language as written and believes that local fire department personnel should be allowed to collect additional information within their jurisdiction that promotes safety.

The OCA noted that the Board has ample statutory authority to require the information as proposed; however, OCA suggested the following revision:

> **45.3(6)** Notification. When the distributed generation facility is placed in service, owners of interconnected distributed generation facilities are required to notify local paid or volunteer fire departments via U.S. mail of the location of distributed generation facilities and the associated disconnection device(s). The owner is required to provide any information related to the distributed generation facility as reasonably required by that local fire department including but not limited to:

Staff Recommendation

Staff notes that the notification requirements were proposed prior to the workshop held October 6, 2015, and comments at the workshop were supportive of the Board's proposed rule. Staff recommends making the following changes to the proposed rule:

> **45.3(6)** *Notification.* When the distributed generation facility is placed in service, owners of interconnected distributed generation facilities are required to notify local ~~paid or volunteer~~ fire departments via U.S. mail of the location of distributed generation facilities and the associated disconnection device(s). The owner is required to provide any information related to the distributed generation facility as reasonably required by that local fire department including but not limited to:
> a. A site map showing property address; service point from utility company; distributed generation facility and disconnect location(s); the location of rapid shutdown and battery disconnect(s), if applicable; property owner's or owner's representative's emergency contact information; utility company's emergency telephone number; and size of the distributed generation facility.
> b. Information to access the disconnection device.
> c. A statement from the owner verifying that the distributed generation facility was installed in accordance with the current state-adopted National Electrical Code.

Disconnections

In the rules (199 IAC 45.3(2)(f)) proposed by the Board in the July 22, 2016, order, a customer's electric service could be disconnected (as provided in 199 IAC chapter 20) for failing to comply with requirements in 45.3(2)(a)-(e). Additionally, the Board's proposed rule (199 IAC 45.3(4)) includes a provision that allows the utility to disconnect the applicant's distributed generation facility if it was not in compliance with the requirements of IEEE standard 1547 and the noncompliance adversely affects the safety or reliability of the electrical system.

Staff summarizes comments related to the provisions for a penalty for noncompliance below – although the comments may refer to different portions of 199 IAC 45.3.

MidAmerican advocated that the penalty for noncompliance should be disconnection of the distributed generation facility rather than the customer's electric service. MidAmerican proposed the following:

> *45.3(2)(f)* If ~~A~~an interconnection customer ~~failing~~ fails to comply with the foregoing requirements, the electric utility may require disconnection of the distributed generation facility or distributed energy storage facility until it complies with this chapter. ~~may be disconnected as provided in 199—Chapter 20.~~ The disconnection process details shall be provided in individual utility tariffs or in the interconnection agreement. If separate disconnection of only the distributed generation facility or the distributed energy storage facility is not feasible or safe, the customer may be disconnected as provided in 199 IAC—Chapter 20.

MidAmerican also suggested that the rules addresse reconnection of a distributed generation facility that has been disconnected for noncompliance. MidAmerican recommended the following:

> *Reconnections*. If a customer's facility is disconnected due to noncompliance with section 45.3 of this chapter, the customer shall be responsible for payment of any costs associated with reconnection of the facility once it is in compliance with the rules.

IPL supports the Board's proposed rule but suggested moving the penalty for noncompliance to the end of the section which would reinforce all requirements. The IAEC is supportive of the Board's proposed rules but would be agreeable to limiting the disconnection to the distributed generation facility when that can be accommodated with a separate disconnection device.

ELPC/IEC/IREC recommended that any remedy for failure to comply with the disconnection device requirements first include written notice to the customer with an opportunity to comply and then only disconnection of the distributed generation facility. ELPC/IEC/IREC believes disconnection of the customer's electric service goes beyond safety and could be seen as unnecessarily punitive.

The OCA agreed that written notice and an opportunity to comply should be the first step when the customer is not in compliance with the rules. The OCA encouraged the Board to modify the language so that when a disconnection device is installed; only the distributed generation facility would be disconnected for noncompliance. Furthermore, the OCA said that the customer's electric service should only be disconnected when it is not feasible to separately disconnect the customers interconnected distributed generation facility.

The OCA also agreed that moving the disconnection language to the end of the section would give the provision a wider effect and suggested the following revision:

45.3(7) *Disconnections*. If an interconnection customer fails to comply with the ~~foregoing~~ requirements of this rule and facility's noncompliance adversely affects the safety or reliability of the electric system, the electric utility may require disconnection of the applicant's facility until the facility complies with this chapter. The disconnection process shall be specified in individual electric utility tariffs or in the interconnection agreement. If separate disconnection of only the distributed generation facility is not feasible or safe, the customer may be disconnected as provided in 199—Chapter 20.

Staff Recommendation

Staff recommends the Board strike the proposed rule 199 IAC 45.3(2)(f) and similar language from 199 IAC 45.3(4). The penalty for noncompliance should be moved to the end of section 199 IAC 45.3, therefore, applying to any requirements of 45.3. Staff also recommends including MidAmerican's proposal for reconnections.

~~*45.3(2)(f)* An interconnection customer that fails to comply with the foregoing requirements may be disconnected as provided in 199 Chapter 20. The disconnection process details shall be provided in individual utility tariffs or in the interconnection agreement.~~

45.3(4) …~~If the utility discovers that the applicant's facility is not in compliance with the requirements of IEEE Standard 1547, and the noncompliance adversely affects the safety or reliability of the electrical system, the utility may require disconnection of the applicant's facility until the facility complies with this chapter.~~

45.3(7) *Disconnections*. If an interconnection customer fails to comply with the foregoing requirements of 45.3, the electric utility may require disconnection of the applicant's distributed generation facility until the facility complies with 45.3. The disconnection process shall be specified in individual electric utility tariffs or in the interconnection agreement. If separate disconnection of only the distributed generation facility is not feasible or safe, the customer's electric service may be disconnected as provided in 199—Chapter 20.

> **45.3(8)** *Reconnections*. If a customer's distributed generation facility or electric service is disconnected due to noncompliance with 45.3, the customer shall be responsible for payment of any costs associated with reconnection once the facility is in compliance with the rules.

199—45.4 (476) Interconnection requests

In the July 22, 2016, order, the Board proposed to move the interconnection request forms and applications from the rules to the Board's Web site. The Board also proposed adding the newly drafted preapplication request process and supplemental review process to the Web site rather than including those processes in the 199 IAC chapter 45 rules.

There were many comments arguing that the new processes should be included in the rules and that the interconnection fees (which currently are only listed on the interconnection application forms) should also be included as part of the rules.

Preapplication Process

MidAmerican supported the language in the preapplication request process but believes the process should be incorporated into the Board's rules. MidAmerican suggested the Board revise the initial paragraph of the preapplication process to include multi-turbine wind projects rather than just roof-top solar. Additionally, MidAmerican recommended that third-party customer-specific information should be protected in the utility-provided preapplication report.

IPL supports the addition of the preapplication process but noted that IPL does not currently have access to some of the data to be included in the preapplication report.

ELPC/IEC/IREC recommended that the preapplication request process be included in rules to ensure that future changes reflect stakeholder input. The rulemaking process allows Iowa to develop and update consensus-based interconnection standards. Furthermore, including the substantive portions of the preapplication request process in rules would be consistent with practices in other leading states.

Staff Recommendation

Staff recommends the Board include the preapplication report process in the rules as referenced below:

> **45.4(1)** Applicants seeking to interconnect a distributed generation facility shall submit an interconnection request to the

utility that owns the electric distribution system to which interconnection is sought. Applicants shall identify in the application if they are representing a group of customers that are located in the same vicinity and whether the application requires a group interconnection study. Applicants shall ~~follow the board-approved processes and~~ use the board-approved interconnection request forms ~~approved by the board~~ and agreements that are provided on the board's Web site, http://iub.iowa.gov.. ~~Applicants may request a preapplication report from the utility using the board-approved preapplication request process that is provided on the board's Web site.~~

45.4(2) *Preapplication Request.* Applicants may request a preapplication report from the utility using the following process:

a. The utility shall designate an employee or office from which information on the application process and on the Affected system can be obtained through informal requests from the Applicant presenting a proposed project for a specific site, which may include multiple proposed individual interconnections in close proximity and related to one project such as a residential or commercial development proposing roof-top solar on each premise or a multi-turbine wind project. The name, telephone number, and E-mail address of such contact employee or office shall be made available on the utility's Web site. Electric system information provided to the Applicant should include relevant available system studies, interconnection studies, and other materials useful to get an understanding of an interconnection at a particular point on the utility's electric distribution system, to the extent such provision does not violate confidentiality provisions of prior agreements or critical infrastructure requirements. The utility shall comply with reasonable requests for such information.

b. In addition to the information described in 45.4(2)(a), which may be provided in response to an informal request, an Applicant may submit a formal written request form along with a non-refundable fee of $300 for a preapplication report on a proposed project at a specific site. The utility shall provide the preapplication data described in 45.4(2)(a) to the applicant within 20 business days of receipt of the completed request form and payment of the $300 fee. The preapplication report produced by the utility is non-binding, does not confer any rights, and the applicant must still successfully apply to interconnect to the utility's system. The written preapplication report request form shall include the following information to clearly and sufficiently identify the location of the proposed point of interconnection:

(1) Proposed distributed generation facility owner's contact information, including name, address, phone number, and E-mail address.

(2) Project location (street address with nearby cross streets and town).
(3) Meter number, pole number, or other equivalent information identifying proposed point of interconnection, if available.
(4) Generator Type (e.g., solar, wind, combined heat and power, etc.).
(5) Size (alternating current kW).
(6) Single or three phase generator configuration.
(7) Stand-alone generator (no onsite load, not including station service – Yes or No?).
(8) Is new service requested? Yes or No? If there is existing service, include the customer account number, site minimum and maximum current or proposed electric loads in kW (if available) and specify if the load is expected to change.
c. Using the information provided in the preapplication report request form in 45.4(2)(b), the utility will identify the substation/area bus, bank or circuit likely to serve the proposed point of interconnection. This selection by the utility does not necessarily indicate, after application of the screens and/or study, that this would be the circuit to which the distributed generation facility ultimately be connected or that interconnection will occur. The applicant must request additional pre-application reports if information about multiple points of interconnection is requested. Subject to 45.4(2)(d) and other confidentiality concerns identified by the utility, the preapplication report will include the following information:
(1) Total capacity (in MW) of substation/area bus, bank or circuit based on normal or operating ratings likely to serve the proposed point of interconnection.
(2) Existing aggregate generation capacity (in MW) interconnected to a substation/area bus, bank or circuit (i.e., amount of generation online) likely to serve the proposed point of interconnection.
(3) Aggregate queued generation capacity (in MW) for a substation/area bus, bank or circuit (i.e., amount of generation in the queue) likely to serve the proposed point of interconnection.
(4) Available capacity (in MW) of substation/area bus or bank and circuit likely to serve the proposed point of interconnection (i.e., total capacity less the sum of existing aggregate generation capacity and aggregate queued generation capacity).
(5) Substation nominal distribution voltage and/or transmission nominal voltage if applicable.
(6) Nominal distribution circuit voltage at the proposed point of interconnection.
(7) Approximate circuit distance between the proposed point of interconnection and the substation.

(8) Relevant line section(s) actual or estimated peak load and minimum load data, including daytime minimum load and absolute minimum load, when available.
(9) Number and rating of protective devices and number and type (standard, bi-directional) of voltage regulating devices between the proposed point of interconnection and the substation/area. Identify whether the substation has a load tap changer.
(10) Number of phases available at the proposed point of interconnection. If it is a single phase, distance from the three-phase circuit.
(11) Limiting conductor ratings from the proposed point of interconnection to the distribution substation.
(12) Whether the point of interconnection is located on a spot network, grid network, or radial supply.
(13) Based on the proposed point of interconnection, existing or known constraints such as, but not limited to, electrical dependencies at that location, short circuit interrupting capacity issues, power quality or stability issues on the circuit, capacity constraints, or secondary networks.
d. The preapplication report need only include existing data. A preapplication report request does not obligate the utility to conduct a study or other analysis of the proposed generator in the event that data is not readily available. If the utility cannot complete all or some of the preapplication report due to lack of available data, the utility shall provide the applicant with a preapplication report that includes the data that is available. The provision of information on "available capacity" pursuant to 45.4(2)(c)(4) does not imply that an interconnection up to this level may be completed without impacts since there are many variables studied as part of the interconnection review process, and data provided in the preapplication report may become outdated at the time of the submission of the complete interconnection request. Notwithstanding any of the provisions of this section, the utility shall, in good faith, include data in the preapplication report that represents the best available information at the time of reporting.

Staff believes the provision included in 199 IAC 45.4(2)(c)[3] addresses MidAmerican's concern about protecting confidential information; therefore, staff does not recommend any changes to the preapplication process.

[3] Specifically the sentence in 199 IAC 45.4(2)(c) that states, "Subject to 45.4(2)(d) and other confidentiality concerns identified by the utility, the preapplication report will include the following information:"

Interconnection Fees

ELPC/IEC/IREC does not object to the interconnection fees proposed by the Board, but expressed concerns with the fees not being included in the chapter 45 rules. ELPC/IEC/IREC argued that there should be a robust process to examine the interconnection fees before making adjustment to the fee levels. Removing the fees from the rules may result in frequent and unpredictable changes to the fees without a public stakeholder process to consider such changes. It is more transparent for all stakeholders to have the interconnection fees in the rules rather than buried on the Board's Web site.

The IAEC is supportive of the fee levels proposed included in the forms.

Staff Recommendation

Staff recommends including the interconnection fees in the rules to provide transparency and the ability for applicants and stakeholders to provide feedback. Staff recommends the following revisions:

> ~~**45.4(2)**~~**45.4(3)** Utilities shall specify the fee by level that the applicant shall remit to process the interconnection request. The fee shall be specified in the interconnection request forms. ~~Utilities may charge a fee by level that applicants must remit in order to process an interconnection request.~~ The utilities shall not charge more than the fees as specified ~~in the Standard Application Forms in Appendix A (199—45.14(476)) and Appendix C (199—45.16(476))~~ Level 1 Interconnection Request Application form and Distributed Generation Interconnection Agreement or the Levels 2 to 4 Interconnection Request Application form, which are located on the board's Web site. below:
>
> *a.* Level 1 - $125 application fee and up to an additional $125 if the utility performs a Witness Test as specified in 45.5(10).
> *b.* Level 2 - $250 application fee plus $1.00 per kVA and up to an additional $125 if the utility performs a Witness Test as specified in 45.5(10).
> *c.* Level 3 - $500 application fee plus $2.00 per kVA.
> *d.* Level 4 - $1,000 application fee plus $2.00 per kVA.

199—45.9(476) Level 2 expedited review

MidAmerican supports the language in the supplemental review process and believes the process will provide a more time-and cost-effective review process for both customers and the utilities. MidAmerican recommended that this process be included in the Board's rules.

IPL supports the addition of the supplemental review process but noted that IPL currently does not have much of the data associated with the minimum load screen, voltage and power quality screen, or the safety and reliability screen.

ELPC/IEC/IREC recommended that the supplemental review process be included in rules to ensure that future changes reflect stakeholder input. The rulemaking process allows Iowa to develop and update consensus-based interconnection standards. Furthermore, including the substantive portions of the supplemental review process in rules would be consistent with practices in other leading states.

Staff Recommendation

Staff recommends the Board include the supplemental review process in the rules at 199 IAC 45.9(6) as follows:

> **45.9(6)** ~~Additional~~ Supplemental review may be appropriate when a distributed generation facility fails to meet one or more of the Level 2 screens. The utility shall offer to perform ~~additional~~ a supplemental review to determine whether there are minor modifications to the distributed generation facility or electric distribution system that would enable the interconnection to be made safely ~~and so that it will not cause~~ without causing adverse system impacts. ~~The utility shall provide the applicant with a nonbinding estimate for the costs of additional review and the costs of minor modifications to the electric distribution system. The utility shall undertake the additional review only after the applicant pays for the additional review. The utility shall undertake the modifications only after the applicant pays for the modifications. The utility shall adopt the board-approved supplemental review process unless the utility has defined a supplemental review process in its board-approved tariff. The board-approved supplemental review process is provided on the board's Web site.~~ To accept the offer of a supplemental review, the Applicant shall agree in writing, and submit a deposit for the estimated costs of the supplemental review in the amount of the utility's good faith non-binding estimate of the costs for such review, both within 15 business days of the offer. If the written agreement and deposit have not been received by the utility within that timeframe, the interconnection request shall continue to be evaluated under the applicable study process unless it is withdrawn by the Applicant.
>
> *a.* The Applicant may specify the order in which the utility will complete the screens in section 45.9(6)(c).
>
> *b.* The Applicant shall be responsible for the utility's actual costs for conducting the supplemental review. The Applicant must pay

any review costs that exceed the deposit within 20 business days of receipt of the invoice or resolution of any dispute. If the deposit exceeds the invoiced costs, the utility will return such excess within 20 business days of the invoice without interest.

c. Within 30 business days following receipt of the deposit for a supplemental review, the utility shall:

(1) Perform a supplemental review using the screens set forth below;

(2) Notify in writing the Applicant of the results; and

(3) Include with the notification, copies of the analysis and data underlying the utility's determinations under the screens.

d. Unless the Applicant provided instructions on how to respond to the failure of any of the supplemental review screens identified below at the time the Applicant accepted the offer of a supplemental review, the utility shall notify the Applicant following the failure of any of the screens, or if it is unable to perform the screen in section 45.9(6)(d)(1), within two business days of making such determination to obtain the Applicant's permission to: (1) continue evaluating the proposed interconnection under this section; (2) terminate the supplemental review and continue evaluating the small generating facility; or (3) terminate the supplemental review upon withdrawal of the interconnection request by the Applicant.

(1) Minimum Load Screen: Where 12 months of line section minimum load data (including onsite load but not station service load served by the proposed small generating facility) are available, can be calculated, can be estimated from existing data, or determined from a power flow model, the aggregate generating facility capacity on the line section must be less than 100 percent of the minimum load for all line sections bounded by automatic sectionalizing devices upstream of the proposed small generating facility. If minimum load data is not available, or cannot be calculated, estimated or determined, the utility shall include the reason(s) that it is unable to calculate, estimate or determine minimum load in its supplemental review results notification under section c above.

A. The type of generation used by the proposed small generating facility will be taken into account when calculating, estimating, or determining circuit or line section minimum load relevant for the application of screen. Solar photovoltaic (PV) generation systems with no battery storage use daytime minimum load (i.e. 10 a.m. to 4 p.m. for fixed panel systems and 8 a.m. to 6 p.m. for PV systems utilizing tracking systems), while all other generation uses absolute minimum load.

B. When this screen is being applied to a small generating facility that serves some station service load, only the net injection into the utility's electric system will be considered as part of the aggregate generation.

C. Utility will not consider generating facility capacity known to be already reflected in the minimum load data as part of the aggregate generation for purposes of this screen.

(2) Voltage and Power Quality Screen: In aggregate with existing generation on the line section: (1) the voltage regulation on the line section can be maintained in compliance with relevant requirements under all system conditions; (2) the voltage fluctuation is within acceptable limits as defined by the Institute of Electrical and Electronics Engineers (IEEE) Standard 1453, or utility practice similar to IEEE Standard 1453; and (3) the harmonic levels meet IEEE Standard 519 limits.

(3) Safety and Reliability Screen: The location of the proposed small generating facility and the aggregate generation capacity on the line section do not create impacts to safety or reliability that cannot be adequately addressed without application of the study process. The utility shall give due consideration to the following and other factors in determining potential impacts to safety and reliability in applying this screen.

A. Whether the line section has significant minimum load levels dominated by a small number of customers (e.g., several large commercial customers).

B. Whether the load along the line section is uniform or even.

C. Whether the proposed small generating facility is located in close proximity to the substation (i.e., less than 2.5 electrical circuit miles), and whether the line section from the substation to the point of interconnection is a mainline rated for normal and emergency ampacity.

D. Whether the proposed small generating facility incorporates a time delay function to prevent reconnection of the generator to the system until system voltage and frequency are within normal limits for a prescribed time.

E. Whether operational flexibility is reduced by the proposed small generating facility, such that transfer of the line section(s) of the small generating facility to a neighboring distribution circuit/substation may trigger overloads or voltage issues.

F. Whether the proposed small generating facility employs equipment or systems certified by a recognized standards

organization to address technical issues such as, but not limited to, islanding, reverse power flow, or voltage quality.

e. If the proposed interconnection passes the supplemental screens in sections 45.9(6)(d)(1),(2), and (3), the interconnection request shall be approved and the utility will provide the Applicant with an executable interconnection agreement within the timeframes established in sections 45.9(6)(f) and (g). If the proposed interconnection fails any of the supplemental review screens and the Applicant does not withdraw its interconnection request, it shall continue to be evaluated under the Level 4 study process consistent with 199 IAC 45.11.

f. If the proposed interconnection passes the supplemental screens in sections 45.9(6)(d)(1),(2), and (3) and does not require construction of facilities by the utility on its own system, the interconnection agreement shall be provided within ten business days after the notification of the supplemental review results.

g. If interconnection facilities or minor modifications to the utility's system are required for the proposed interconnection to pass the supplemental screens in sections 45.9(6)(d)(1),(2), and (3), and the Applicant agrees to pay for the modifications to the utility's electric system, the interconnection agreement, along with a non-binding good faith estimate for the interconnection facilities and/or minor modifications, shall be provided to the Applicant within 15 business days after receiving written notification of the supplemental review results.

h. If the proposed interconnection would require more than interconnection facilities or minor modifications to the utility's system to pass the supplemental screens in sections 45.9(6)(d)(1),(2), and (3), the utility shall notify the Applicant at the same time it notifies the Applicant with the supplemental review results, that the interconnection request shall be evaluated under the Level 4 study process unless the Applicant withdraws its small generating facility.

No Construction Screens

ELPC/IEC/IREC reiterated its position that the Board should remove the 'no construction screens' for levels 1-3. These screens do not allow a project to receive expedited review if the project requires the utility to build any facilities to accommodate the project. ELPC/IEC/IREC urged the Board to allow the utilities additional time to provide a cost estimate along with an Interconnection Agreement when upgrades are needed.

As an alternative, if the Board does not eliminate the 'no construction screen,' ELPC/IEC/IREC recommended that the Board revise the rules to give the utilities the discretion to allow a project to receive expedited

review even if it does not pass the 'no construction screen.' Currently the rules provide this approach for Level 2, but not for Level 1 or Level 3.

In reply comments MidAmerican noted that if the 'no construction screen' indicated a need for utility system construction, this shows the potential for adverse impacts to the distribution system. MidAmerican believes that this screen should be maintained, but mentioned that in previous comments MidAmerican had asked the Board to define "minor system modifications" as a way to provide flexibility in situations where only the interconnection created only minor impacts. However, MidAmerican pointed out that Board staff previously did not recommend removing the "no construction screen" and did not recommend defining the "minor system modification."[4] MidAmerican said that the proposed supplemental review process will provide the utilities and applicants additional flexibility to solve small interconnection problems without resorting to Level 4 review.

Staff Recommendation

Staff does not recommend removing the 'no construction screens.' As noted by MidAmerican, staff believes the proposed supplemental review process provides applicants and utilities a way to move projects forward without requiring a Level 4 review.

199—45.11(476) Level 4 review

IPL suggested several changes to 199 IAC 45.11(6)(a)(2) and 45.11(6)(b)(5-7) in the comments filed September 6, 2016. IPL believes the proposed changes will provide transparency and clarity related to the affected system study. The proposed changes are shown below:

45.11(6)(a)(2) IPL suggested the following revision:

(1) A load flow study;
(2) Identification of affected systems and any subsequent affected system study;
(3) An analysis of equipment interrupting ratings;
(4) A protection coordination study;
(5) Voltage drop and flicker studies;
(6) Protection and set point coordination studies;
(7) Grounding reviews; and
(8) Impact on system operation.

[4] Docket No. NOI-2014-0001, August 5, 2015, Gold Memo, pp. 20-22, filed in EFS on September 1, 2015.

45.11(6)(b)(5-7) IPL suggested the following revision:

b. An interconnection system impact study shall consider any necessary criteria from among the following:

(1) A short-circuit analysis;
(2) A stability analysis;
(3) Alternatives for mitigating adverse system impacts on affected systems;
(4) Voltage drop and flicker studies;
(5) Protection and set point coordination studies; ~~and~~
(6) Grounding reviews~~.~~; and
(7) Results from the affected system study

Staff Recommendation

IPL proposed revisions to 199 IAC 45.11(6) for the first time in the comments filed on September 6, 2016. Other parties have not had an opportunity to respond to these proposed changes. Staff recommends the Board issue an order to specifically ask for comments on IPL's proposed changes to ensure all parties have an opportunity to comment.

199—45.13(476) Records and reports

In an attempt to consolidate the reporting requirements for the utilities, the Board proposed to combine the interconnection reports outlined in 199 IAC 45.13 with distributed generation-related reporting requirements in 199 chapter 15.

ELPC/IEC/IREC support transparent reporting by the utilities and believe the reports should have sufficient detail to allow stakeholders to review and understand the data. Additionally, ELPC/IEC/IREC recommended that the utilities provide information that is not redacted for purposes of confidentiality. ELPC/IEC/IREC suggested the Board include the following information in the distributed generation interconnection reporting requirements.

- Date the interconnection application was received;
- The total nameplate capacity and fuel type of the distributed generation facility;
- The level of review received (Level 1, Level 2, Level 3, or Level 4) and whether the project failed any initial review screens and if so, which screens, whether the facility receive supplemental review and whether any impact or facility study was conducted;
- Whether the interconnection was approved, denied, or withdrawn and the date of that action; and
- Whether the distributed generation was constructed and began operation and, if so, the date the facility began operation.

Additionally, ELPC/IEC/IREC suggested the reports include a summary that aggregates information on the preapplication reports and interconnection requests including the distributed generation capacity added in the previous calendar year by fuel type and total distributed generation capacity operating in the utility's service territory by fuel type.

MidAmerican expressed concern about the proposed rules requirement to file a non-confidential report since the Board has accepted this confidential information in the past and no parties have challenged the confidential designation. MidAmerican opposed expanding the reporting requirements as requested by ELPC/IEC/IREC and believes many of the items requested would need to be collected by the applicant. MidAmerican opined that until there is a demonstrated need for the information, the Board should not expand the reporting requirements.

IPL does not oppose the reporting requirements suggested by ELPC/IEC/IREC, but proposed several changes noted below:

- Date the interconnection application was received as complete;
- The total AC nameplate capacity and fuel type of the distributed generation facility;
- The level of review received (Level 1, Level 2, Level 3, or Level 4) and whether the project failed any initial screens and if so and readily determinable, which screens, whether the facility receive supplemental review and whether any impact or facility study was conducted;
- Whether the interconnection was approved, ~~or~~ denied, or withdrawn and the date of that action; and
- Whether the facility is operational and if so ~~the date the facility began operation~~ the date the electric utility authorized the facility to begin operation.

Staff Recommendation

Staff originally proposed to combine the interconnection information with other distributed generation-related information collected in 199 IAC chapter 15. However, after reviewing the information collected in chapter 15, staff believes that it would be more beneficial to keep the interconnection information separate. Having separate reports will allow staff and others to review the information for interconnection each year and observe the trends in distributed generation development.

Staff believes that the utilities should report the information requested on a non-confidential basis since the proposed rules do not require the utility to report the interconnection by customer name or location. Although staff suggests removing the requirement that utilities file a non-confidential report, staff recommends the

Board encourage the utilities to file reports that provide the required information in a publically available manner.

Staff recommends the following revisions:

> **199—45.13(476) Records and reports**
> **45.13(1)** For each completed interconnection request received by the utility, the utility shall maintain records of the following for a minimum of three years:
> *a.* Date the interconnection application was received as complete, ~~The~~ the total AC nameplate capacity, and fuel type of the distributed generation facility;
> *b.* The level of review received (Level 1, Level 2, Level 3, or Level 4) and whether the project failed any initial screens and if so and readily determinable, which screens, whether the facility receive supplemental review and whether any impact or facility study was conducted; ~~and~~
> *c.* Whether the interconnection was approved, ~~or~~ denied, or withdrawn and the date of that action; and
> *d.* Whether the facility is operational and if so the date the electric utility authorized the facility to begin operation.
> **45.13(2)** ~~Beginning May 1, 2011, e~~Each utility shall file a ~~nonconfidential annual~~ report by ~~April~~ May 1 of each year detailing the information required in subrule 45.13(1) for the previous calendar year ~~the utility's distributed generation interconnection as required by 199—Chapter 15~~.

199—45.14-45.20 Interconnection agreements, forms, etc

MidAmerican supports making the customer-facing interconnection application process more accessible and streamlined, but is concerned about the future treatment of the forms, particularly the process for amending or updating the forms in the future. MidAmerican also questioned the legal significance of the forms if a dispute arises over certain form terms. MidAmerican suggested opening a separate rulemaking to discuss the issue of removing the forms from the rules.

IPL suggested several changes to the interconnection agreements/forms in the September 6, 2016, comments.

- Include ownership structure on the application form (owner, lease, third-party PPA, or other)
- Include a field for the meter number for all interconnection applications.
- Include a question to determine if the application is to expand an existing distributed generation facility.

- Collect the distributed generation facility nameplate capacity as an AC rating for all interconnection applications.
- Include specific questions related to solar PV systems to better assess their capabilities, potential output and distribution system impact.
- For Level 1 applications include a section for Additional Information for Inverter Based Facilities (like is currently done for Level 2 Interconnection Applications.
- For Leve 1 – Include the following language in section 2 of the Terms and Condition:
    - Executed Certificate of Completion: The utility has signed, executed and transmitted to the interconnection customer the Certificate of Completion provide by the interconnection customer in 2 b).
- Level 2 to 4 Distributed Generation Interconnection Agreement – IPL suggests revisions to accommodate IPL's willingness to review third-party testing related to anti-islanding certification.
- Interconnection System Impact Study Agreement – IPL suggests adding a section to reflect the affected system study.

The IAEC believes having the forms and agreements on the Board Web site will make them more readily accessible to applicants. However, the IAEC recommended that caution should be taken not to amend the forms without stakeholder input.

The OCA believes that the information required to be provided in the application process should be considered Board policy and properly detailed in the Board rules. OCA noted that the forms do not need to be contained in the rules; there is a benefit from the certainty of having the basic requirements and procedures for the interconnection process contained in the rules.

In its reply comments, MidAmerican agreed with the changes suggested by IPL.

Staff Recommendation

IPL proposed revisions to the interconnection agreements and forms for the first time in the comments filed September 6, 2016. Although MidAmerican filed reply comments, other parties have not had an opportunity to respond these proposed changes. Staff recommends the Board issue an order to specifically ask for comments on IPL's proposed changes to ensure all parties have an opportunity to comment.

III. Recommendation

Staff recommends that the Board issue the attached order which directs parties to comment on specific revisions suggested by IPL. Staff also recommends the Board attach the revised rules to the order for the parties to review.